

P016 Influence of the extracellular matrix on the mechanical properties of tissue engineered cartilage
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Introduction: Articular cartilage provides low friction surfaces for articulation. Its tribological properties may be impaired following injury or disease, and repair is made difficult by a relatively poor capacity for regeneration. Recognition of these problems has led to the development of tissue engineered (TE) cartilage.

Objectives: This study investigated the importance of the extra cellular matrix on the mechanical properties of TE cartilage.

Methods: TE cartilage was produced using published methods (Crawford and Dickinson). Indentation and friction tests were performed on engineered constructs in a bath of lubricant.

Native cartilage was used as a reference. Histological tests, glycosaminoglycan and collagen type II evaluations were performed to characterise constructs and lubricant before and after testing.

Results: All the constructs exhibited a time-dependent increase during the tests. While this phenomenon was similar to native cartilage, the values were different. Biochemical and histological examinations suggested that this was due to the extra cellular matrix composition.

Conclusion: While tissue engineering shows promise, data presented here suggests that advanced constructs with properties closer to those of native cartilage must be developed before clinical application.